

U.S. Patent Application No. 10/821,401  
Response to Office Action of April 11, 2008

PATENT

**AMENDMENTS TO THE CLAIMS:**

Applicant hereby amends claims as indicated below. The following listing of claims will replace all prior versions and listings of claims in the application.

**LISTING OF CLAIMS:**

1. (Currently amended) A method for identifying problems in a network environment, comprising the steps of:
  - a. during more than one interval determining the level of one or more impairments;
  - b. grouping said levels of one or more impairments into one or more event groups;
  - c. comparing said one or more event groups with ~~one or more~~ a plurality of problem signatures; and
  - d. categorizing at least one of said one or more event groups as being associated with a network problem having one of said ~~one or more~~ plurality of problem signatures.
2. (Original) A method as defined in Claim 1, further comprising the steps of:
  - a. determining the source of more than one call;
  - b. grouping said more than one calls into one or more call groups based on the source of said more than one calls;
  - c. for each call group determining the number of calls having said network problem; and
  - d. estimating the location of said network problem based on the number of calls having said network problem.
3. (Original) A method as defined in Claim 2, wherein determining the source of more than one call includes determining the source internet protocol address of said more than one call.

U.S. Patent Application No. 10/821,401  
Response to Office Action of April 11, 2008

PATENT

4. (Currently amended) A method as defined in Claim 2, wherein ~~estimating the location of said network problem includes~~ said estimating step further comprises:
  - a. determining the percentage of calls within said call group having said network problem; and
  - b. estimating that the location of said network problem ~~is equal to the source~~ is at the location associated with said call group if the percentage of calls is high.
5. (Currently amended) A method as defined in Claim 1, wherein said one or more impairments is selected from the group consisting of delay, packet loss, jitter, distortion, absolute packet delay variation, relative packet to packet delay variation, short term delay variation, short term average delay, timing drift, ~~packet loss~~, and proportion of out-of-sequence packets.
6. (Currently amended) A method as defined in Claim 1, wherein said network problem is selected from the group consisting of local area network congestion, access link congestion, route change, access link failure, route flapping, ~~load sharing~~, and route diversity.
7. (Currently amended) A method as defined in Claim 5, wherein said network problem is selected from the group consisting of local area network congestion, access link congestion, route change, access link failure, route flapping, ~~load sharing~~, and route diversity.
8. (Original) A method as defined in Claim 7, further comprising the steps of:
  - a. determining the source of more than one call;
  - b. grouping said more than one calls into one or more call groups based on the source of said more than one calls;
  - c. for each call group determining the number of calls having said network problem; and
  - d. estimating the location of said network problem based on the number of calls having said network problem.

U.S. Patent Application No. 10/821,401  
Response to Office Action of April 11, 2008

PATENT

9. (Original) A method as defined in Claim 8, wherein determining the source of more than one call includes determining the source internet protocol address of said more than one call.
10. (Currently amended) A method as defined in Claim 8, wherein ~~estimating the location of said network problem includes~~ said estimating step further comprises:
  - a. determining the percentage of calls within said call group having said network problem; and
  - b. estimating that the location of said network problem ~~is equal to the source~~ is at the location associated with said call group if the percentage of calls is high.
11. (Original) A method as defined in Claim 7, further comprising the step of producing an array of said levels of one or more impairments from measurements taken at one location within the network.
12. (Original) A method as defined in Claim 11, further comprising the steps of:
  - a. determining the source of more than one call;
  - b. grouping said more than one calls into one or more call groups based on the source of said more than one calls;
  - c. for each call group determining the number of calls having said network problem; and
  - d. estimating the location of said network problem based on the number of calls having said network problem.
13. (Original) A method as defined in Claim 12, wherein determining the source of more than one call includes determining the source internet protocol address of said more than one call.
14. (Currently amended) A method as defined in Claim 12, wherein ~~estimating the location of said network problem includes~~ said estimating step further comprises:

U.S. Patent Application No. 10/821,401  
Response to Office Action of April 11, 2008

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PATENT

- a. determining the percentage of calls within said call group having said network problem; and
  - b. estimating that the location of said network problem ~~is equal to the source~~ is at the location associated with said call group if the percentage of calls is high.
15. (Original) A method as defined in Claim 7, wherein determining the level of one or more impairments includes:
- a. applying a local timestamp to a packet corresponding to the actual arrival time of said packet;
  - b. extracting a sending timestamp from said packet;
  - c. extracting a sending sequence number from said packet;
  - d. estimating an expected arrival time for said packet; and
  - e. subtracting the actual arrival time of said packet from the expected arrival time of said packet.
16. (Original) A method as defined in Claim 15, wherein determining the level of one or more impairments includes:

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